

CMSC 330, Spring 2018 Quiz 1

Name _____

Discussion Time (circle one) 10am 11am 12pm 1pm 2pm 3pm

Discussion TA (circle one) BT Daniel Chris Alex Derek Pei-Jo Akbar Justin L.
Tal Shriraj Cameron Eric Kesha Kameron Michael S. Michael P.

Instructions

- Do not start this quiz until you are told to do so.
- You have 15 minutes for this quiz.
- This is a closed book quiz. No notes or other aids are allowed.
- For partial credit, show all your work and clearly indicate your answers.

1. (2 points each) Give the type of the following OCaml expressions. If there is a type error, explain it.

(a) `[1;2] :: [3;4]`

(b) `let x = 5 in (true, x)`

(c) `fun x y -> if x = y then x else y`

(d) `fun f x y -> (f x) :: y`

2. (2 points each) Give an OCaml expression of the following types.

(a) `int * (string list)`

(b) `int -> int -> int`

(c) `'a -> 'b -> ('b * 'a) list`

3. (3 points each) What is the value of the following OCaml expressions?

```
(a) let rec f1 l a =  
    match l with  
    | [] -> a  
    | h::t -> f1 t (h::a)  
in f1 [1;2;3] [7]
```

```
(b) let rec f2 l =  
    match l with  
    | [] -> []  
    | [h] -> [h*5]  
    | h::t -> (h*2)::(f2 t)  
in f2 [1;2;3;4]
```